SITE ASSESSMENT REPORT
FOR
FORMULATED PRODUCTS
CLYDE, SANDUSKY COUNTY, OHIO
TDD: T05-9403-012
PAN: EOH1026SAA
OCUMENT CONTROL NUMBER: TAT-05-23-04009

ecology and environment, inc.
International Specialists in the Environment

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MAY 11, 1994

Prepared for:

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Contract Number 68-WO-0037

Prepared by: _____ Date: 5/10/94
Reviewed by: _____ Date: 5/10/94
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1.0 INTRODUCTION

The Ecology and Environment, Inc. (E & E) Technical Assistance Team (TAT) was tasked by the United States Environmental Protection Agency (U.S. EPA) under Technical Directive Document (TDD) T05-9403-012 to complete site assessment activities at the Formulated Products site in Clyde, Sandusky County, Ohio. The site assessment included a site reconnaissance, sampling of drums located on-site, photo and video documentation, air monitoring, and an evaluation of the potential threat to human health and the environment. Additional TAT activities conducted under this TDD included the preparation of a site health and safety plan, and compiling of available information. Upon the request of U.S. EPA On-Scene Coordinator (OSC) Steve Renninger, the TAT conducted a site assessment at the Formulated Products site on March 31, 1994.

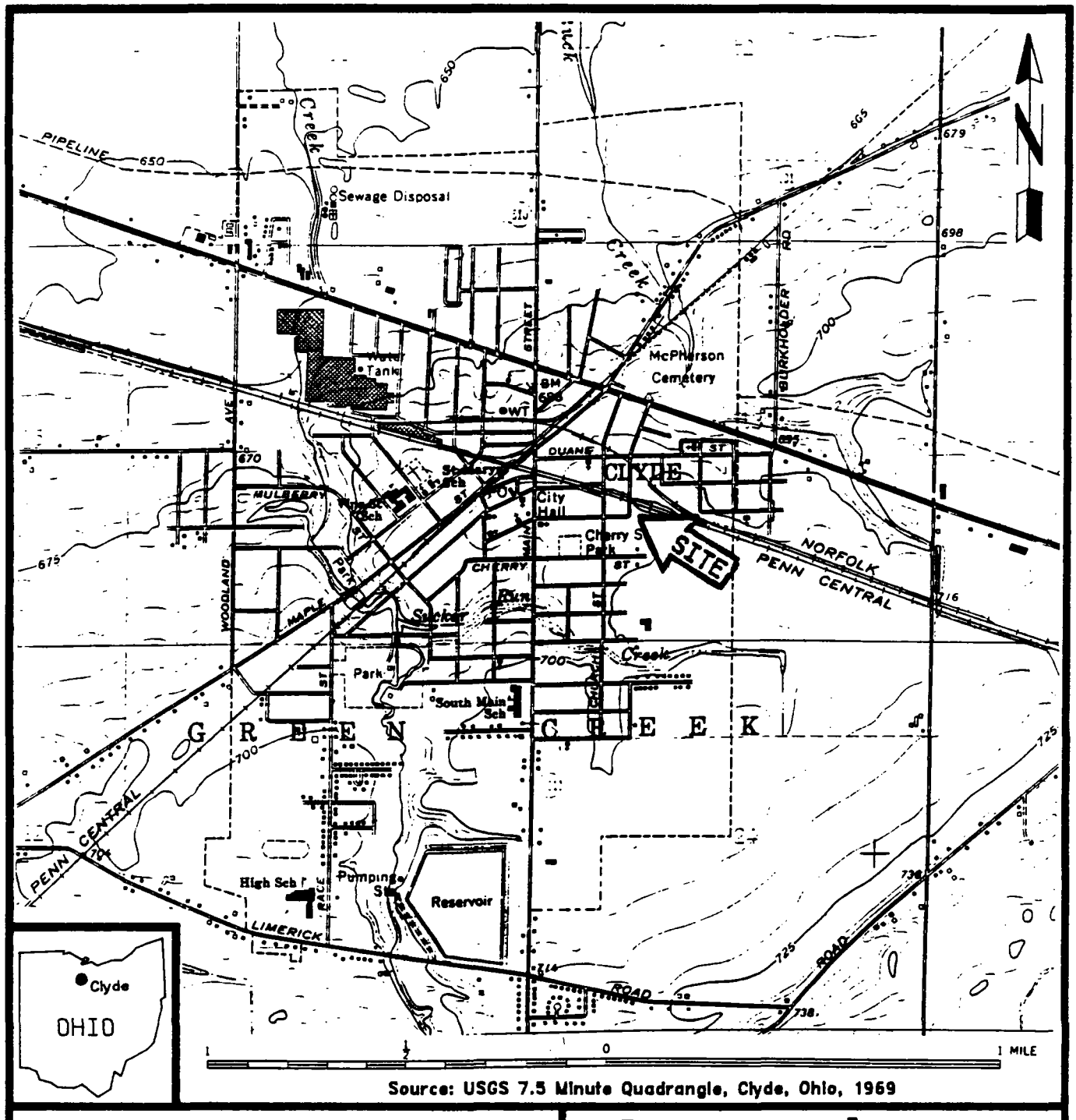
2.0 BACKGROUND

2.1 Site Description

The Formulated Products site is an abandoned industrial cleanser manufacturing facility located at 110 East Street in Clyde, Sandusky County, Ohio (Figure 1), and was in operation from approximately 1971 to 1989. From 1955 to 1971, Hygrade Food Products Corporation (HFPC) operated the on-site facility and was involved in the production of pet foods. The site consists of a warehouse, office, maintenance and processing areas contained inside eight single and multiple story structures. On the west end of the main building there is a large concrete foundation which suggests that at one time there was another structure in the complex. In addition to the eight buildings, there are two banks of metal silos located on the northeast end of the facility (Figure 2).

The Formulated Products (FP) site occupies seven parcels of land in a predominantly residential area in the northeast quadrant of the city. The site is bordered to the north by residences and an active line of the Norfolk & Western (N & W) railroad; to the south by a dirt road, residences and Forest Street; to the west by East Street; and to the east by an open field and the N & W railroad. Figure 2 is a sketch of the facility and the surrounding area.

The Formulated Products site is located in Section 13, Green Creek Township, T.4N, R.16E, Sandusky County. Near the site, Buck Creek flows northwest, draining to Raccoon Creek, which empties into Sandusky Bay on Lake Erie. Glacial drift, from the Illinoian and Wisconsinan ice sheet advances roughly 20,000 years ago, is approximately 50 feet thick in the area around Clyde. The bedrock consists of the Columbus and Delaware Formations of the Detroit River Group. These formations are Devonian Age



Source: USGS 7.5 Minute Quadrangle, Clyde, Ohio, 1969

FIGURE 1
SITE LOCATION MAP
FORMULATED PRODUCTS SITE
CLYDE, SANDUSKY COUNTY, OHIO

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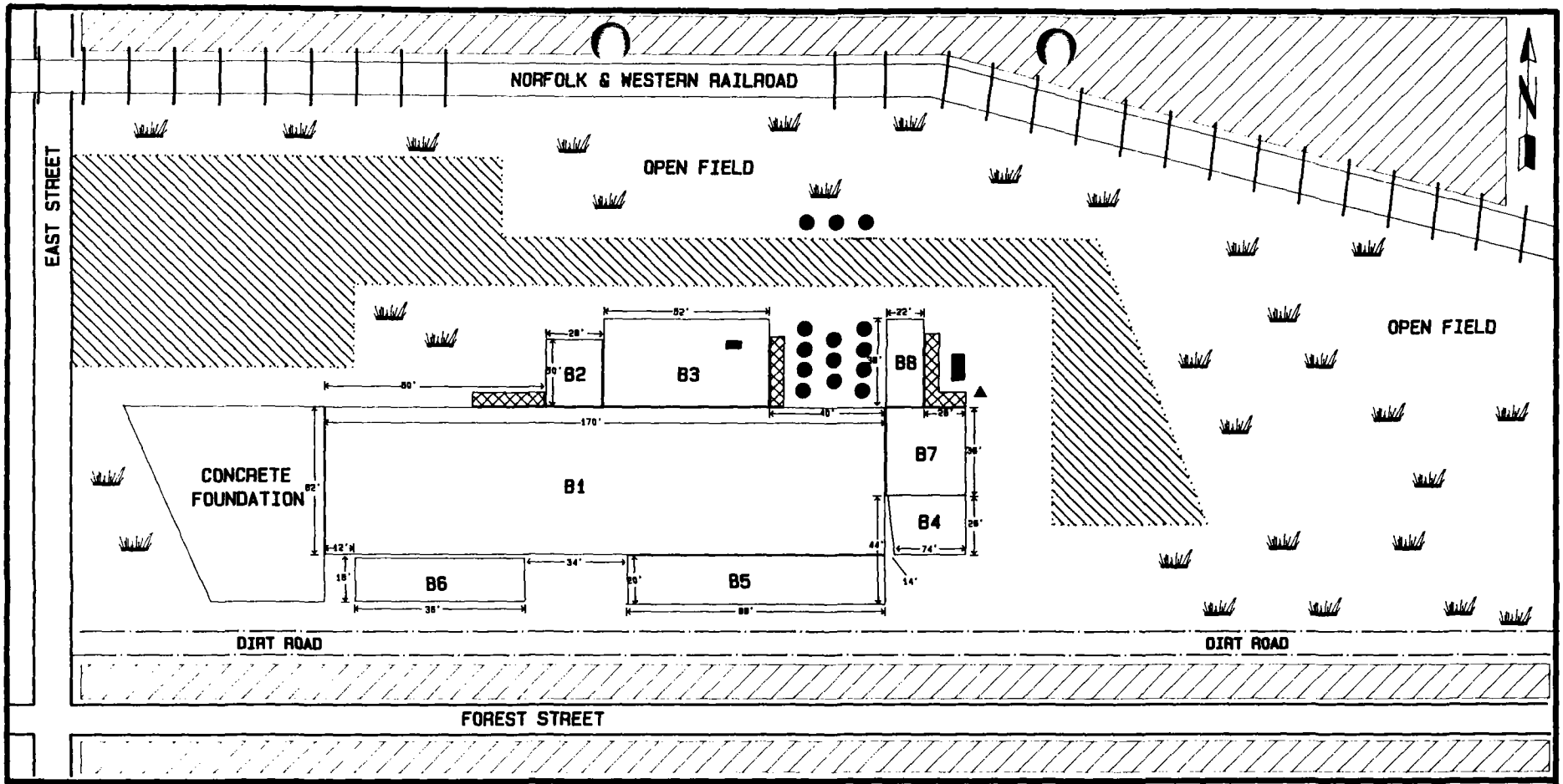

LEGEND

- GRAVEL ROAD/LOT
- LOADING DOCK
- RESIDENTIAL AREA
- SILOS
- B# BUILDING I.D.
- ▲ 5-GAL. PAILS OF CAUSTICS
- PIT
- GRASSLAND

FIGURE 2

SITE FEATURES MAP
FORMULATED PRODUCTS SITE
CLYDE, SANDUSKY COUNTY, OHIO

NOT DRAWN TO SCALE

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limestone and dolomite. The Delaware Formation is also shaly in parts and contains some well-preserved marine fossils. A 71-feet deep water well near the site meets calcareous bedrock at 57 feet below surface. The well's production rate is reported as 10 gallons per minute (gpm). Clyde's municipal/industrial well is located at the city's southern boundary and encounters bedrock at 53 feet depth. The water is described as being high in dissolved solids, hydrogen sulfide, and sulfates, which may deter its use.

At the time of the site assessment, the Ohio Environmental Protection Agency Northeast District Office (OEPA-NWDO) had informed U.S. EPA of the presence of approximately 100 to 200 drums and an indefinite number of assorted smaller containers of chemicals. The Ohio EPA believed the majority of these chemicals were associated with the manufacturing of soaps and detergents. Ohio EPA provided an inventory of the chemicals found at the facility to U.S. EPA. This inventory included caustic soda, sodium perborate, sodium silicate, ethylene glycol and an assortment of lab chemicals. Further study of the listed chemicals by U.S. EPA's TAT determined that there are or have been chemicals at the facility which are used in the manufacturing of soaps and detergent, foods, and cellophane.

In addition to the chemicals present at the site, the Ohio EPA informed U.S. EPA that the complex was unsecured and that several break-ins had occurred; most of them believed to have been by local children. Local officials have expressed concern about the potential for fire, physical injuries, continued vandalism and direct contact with the abandoned chemicals. Furthermore, the Sandusky County Health Department has ordered that the FP facility be boarded over and secured by the owner as a precaution against further unauthorized entry.

2.2 Site History

Incidence of criminal trespass and vandalism have been reported at the facility, usually involving local juveniles. Thus, securing the facility, along with properly disposing of the chemicals on-site, are both concerns of the Sandusky County Department of Public Health (SCDPH) Director of Environmental Health Mary Anne Koebel. These issues were addressed in a letter dated May [redacted] 1993 from the SCDPH to Mr. John Foisy of Bellvue, Ohio, own[redacted] the FP facility. The SCDPH again contacted Foisy in a lett[redacted]ted May 28, 1993, informing him that the facility had been determined a public health nuisance per Section 3707.01, Ohio Revised Code. On June 16, 1993, the SCDPH requested that Foisy provide them with a floor plan of the building indicating the location of the chemicals on-site. Foisy was also asked to cooperate with the Sandusky County Local Emergency Planning Commission (LEPC) regarding notification requirements.

On July 9, 1993, OEPA conducted a complaint inspection at the FP site and documented the presence of wastes at the site which included drums of caustics deteriorating and spilled on the floor, a drum of glycol ether, and several drums of waste oil. In correspondence dated July 9, 1993, the OEPA requested a response plan to have Foisy remove the wastes from the site within 15 days.

In correspondence to Foisy dated July 22, 1993, City of Clyde Manager Dennis Albrinck requested an update of the removal of abandoned 55-gallon chemical drums at the site. The city of Clyde requested that Foisy secure the site building and actively pursue the health and safety problems at the site.

A review of the inventory of chemicals for the FP site determined that the following companies are manufacturers of chemicals which have been abandoned at the site:

Company Name	Chemical Name
Hercules, Inc.	Dresinate TX
BASF Wyandotte Corporation	Pluronic F68LF
Dow Chemical Company	Dowanol EB
Rhone & Poulenc	Antarox BL-225 Antarox LF-344 Cheelox FE-12 Gafac RE-610 Gafamide CDD-518 Emulphogene BC-610 Emulphogene FG-10 Igepal CO-530 Igepal CO-630 Igepal RC-620
Ciba-Geigy Corporation	Tinopal RA-16

3.0 SITE ACTIVITIES

3.1 Site Reconnaissance

On March 29, 1994, U.S. EPA OSC Steve Renninger, and TAT members (TATMs) Timothy Renn and Frank Dachtler conducted a preliminary visit to the FP site. During this visit, site conditions were videotaped and photographed and a strategy for the formal site assessment was developed.

On March 31, 1994, TATMs Sylvia Wong, Timothy Renn, and Frank Dachtler mobilized equipment and supplies and rendezvoused with OSC Renninger at the site. Prior to entering the facility, all air monitoring equipment was calibrated and a meeting was conducted to discuss objectives for on-site activities, as well as health and safety issues. U.S. EPA and the TAT also began to videotape and photograph site conditions and site assessment activities at this time. Photographs of the site are included as Appendix A of this report.

TATMs Wong and Dachtler, in Level C protection, entered Building 1 of the FP complex through an unsecured entrance on the building's south side to conduct an initial walkthrough. Two-way radios were used to maintain communications between the TAT members working inside the building and OSC Renninger. During the walkthrough they determined the locations of drums and containers within the facility and conducted air monitoring. A Microtip HL 2000 photoionization detector (PID), a MSA model 261 oxygen meter/combustible gas indicator (O_2/CGI), and a Victoreen Thyac III radiation meter (model 490) fitted with a pancake probe were used to survey the ambient air for contaminants in the breathing zone. No readings above background levels in the breathing zone were registered on any of the instruments. At the direction of OSC Renninger, TATMs Wong and Dachtler exited the complex onto a loading dock on the northwest side of Building 1 where TATM Renn had established a decontamination area. All remaining assessment activities were executed from the loading dock.

3.2 Site Observations

Building 1 of the complex is a large warehouse approximately 170 feet by 65 feet in size. The walls, ceiling and metal rafters of this structure are covered by a cotton-like insulation material. The floor is concrete. At the halfway point in the warehouse there is a temporary wall that extends from the south wall approximately 15 feet into the warehouse. Three gas cylinders, two 55-gallon steel drums (one empty, one full), and motors are found in the area east of this wall. On the west side of the wall there are several wood pallets on which are stacked corrugated cardboard packing materials. Debris and pieces of the insulating materials from the wall and ceiling are scattered throughout the warehouse area. The TAT collected three samples of the insulating material from this area. Details of this activity are in Section 3.3 Sample Collection.

Building 2 is adjacent to Building 1 on the north side. This building is approximately 50 feet by 30 feet in size. This building is divided into four areas - a machinery room, a drinking fountain area, a lounge area and restrooms. Two 55-gallon fiber drums and one 55-gallon steel drum were found in the

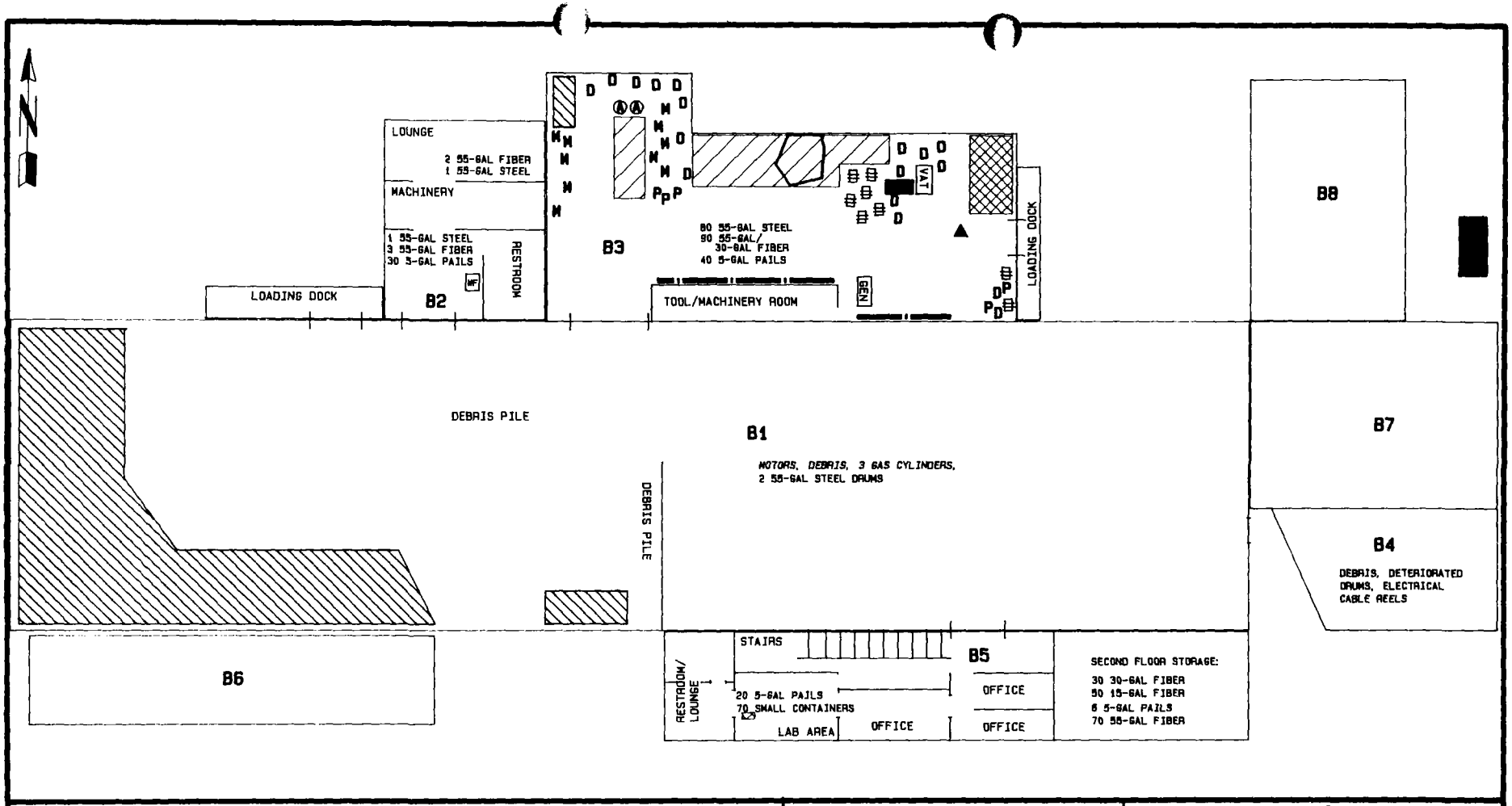
lounge area. One 55-gallon steel drum, three 55-gallon fiber drums, and 30 five-gallon plastic pails were found in the restroom and drinking fountain areas. Many of the pails were determined to be full. Three of the 55-gallon fiber drums were full and the 55-gallon steel drum in the lounge area was determined to be half full. Abandoned office furniture and other general debris were also found in this building.

Building 3 is also adjacent to Building 1 on the north side, and is immediately east and adjacent to Building 2. Building 3 is approximately 55 feet by 50 feet and contains a completely enclosed workshop/tool room plus an overhead catwalk. Several electrical panels line the south wall of this building, and there are additional electrical panels along the overhead catwalk. Building 3 contains approximately 80 55-gallon steel drums, 90 55-gallon and 30-gallon fiber drums, and 40 5-gallon plastic pails. The contents of these containers include caustic sodas, oxidizers, acids, oils, and spent soaps and/or detergents. Approximately 20 of the 55-gallon steel drums were determined to be empty. There is also a collection of small motors at the west end of this building. In addition, the building contains a diesel generator, debris, corrugated cardboard packaging, several boxes containing what appears to be assembled and unassembled Fisher-Price toys, and numerous plastic key chain fobs scattered on the floor. Building 3 exits onto a loading dock on the east end of the building.

Building 4 is adjacent to Building 7 on the south side. This red brick structure is approximately 70 feet by 25 feet and contains deteriorated empty steel drums, wood spools commonly used to hold electrical cable, and debris. There are no doors in the doorways of Building 4 and the structure is completely accessible from the outside.

Building 5 is a two-story yellow brick building adjacent to Building 1 on the south side. This structure measures 90 feet by 20 feet and contains offices and lab space on the first floor and storage space on the second floor. The TAT discovered 20 five-gallon pails and approximately 70 small containers in the laboratory area of this building. In the second-floor storage area 30 30-gallon fiber drums, 50 15-gallon fiber drums, six five-gallon plastic pails, and approximately 70 55-gallon fiber drums were discovered. All of these containers were determined to be empty.

Building 6 is located on the south side of Building 1 at the west end of the structure. Unlike the other buildings which share at least one common wall with an adjacent building, Building 6 is completely separate from Buildings 1 and 5. Building 6 is a stone structure measuring approximately 35 feet by 20 feet. There is a single entrance at the east end of the building and the heavy metal door to the structure was secured



LEGEND

	CARDBOARD PACKING		ELECTRICAL PANELS	WF	WATER FOUNTAIN
	CAUSTICS	P	5-GAL PAILS		CAUSTICS STOCKPILE
	OXIDIZERS	D	DEBRIS		PIT
		M	MOTORS	▲	GLYCOL ETHER DRUM
A	ACIDS		EMPTY DRUMS	GEN	DIESEL GENERATOR

FIGURE 3

BUILDING FLOOR PLAN
MAIN FLOOR
FORMULATED PRODUCTS SITE
CLYDE, SANDUSKY COUNTY, OHIO

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with an internal cross bar which was padlocked in place from the outside. A bolt cutter was used to remove the lock to access the building. Building 6 appears to have served as a tool and machinery shop. The walls of the structure are lined with shelves on which an assortment of materials and supplies common to equipment maintenance are stored. In addition, a generator was discovered inside the building along with general debris.

Building 7 is constructed of stone and white metal siding. It is adjacent to Building 4 on the south side and Building 1 on the west side. Building 8 is constructed of green aluminum siding and is immediately north of Building 7. Buildings 7 and 8 share a loading dock. A bank of 11 metal silos is located immediately west of building 8. Buildings 7 and 8 were determined to be empty.

Figure 3 is a sketch of the FP complex floor plan. This figure also shows locations of wastes inside the building.

While surveying the various buildings in the FP complex the TAT documented the existence of the following abandoned chemicals:

Company Name	Chemical Name
Cabot Corporation	Cab-O-Sil Grade M-5
Rohm and Haas Company	Acrysol-ICS-1
FMC Corporation	Avicel Type RC-591
BASF Wyandotte Corporation	Pluronic L63 Pluronic L62LF
Chemcentral	Glycol Ether EB
Olin Chemical Corporation	Olin CDB-90
Calgon Corporation	Calgon CL-1247 Cooling Water Treatment
PPG	Caustic Soda Beads, Sodium Hydroxide, Anhydrous

The TAT discovered no evidence of many of the chemicals listed on the chemical inventory provided by the Ohio EPA for the site.

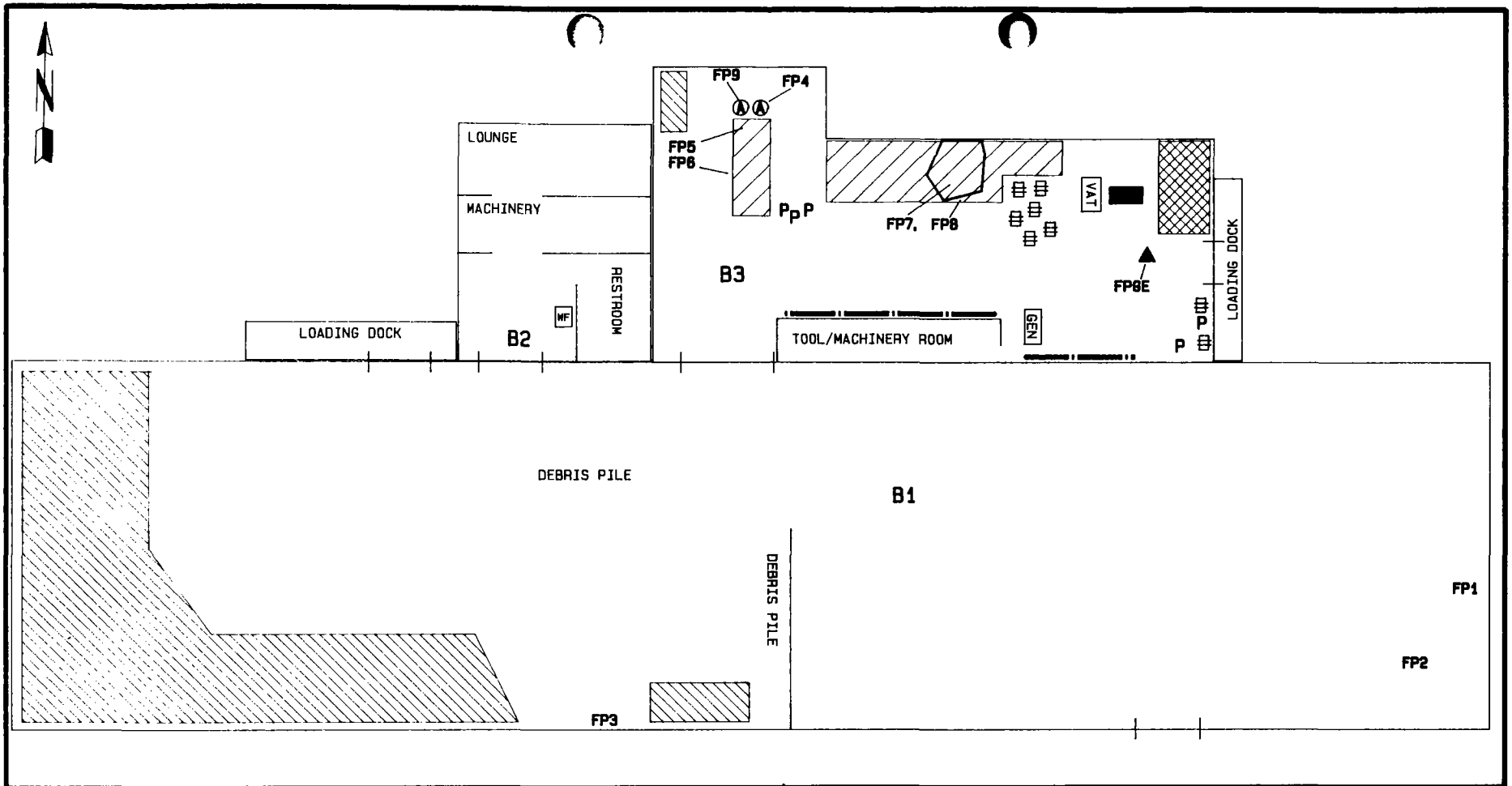
3.3 Sampling Activities

After completion of the initial site reconnaissance, OSC Renninger and the TAT discussed their observations and strategies for the collection of samples. The TAT collected three samples of the cotton-like insulation material in Building 1 to be analyzed for asbestos, and seven to ten samples from the drums and containers in Building 3 to establish the presence of corrosives, caustics, flammable/ignitables, and/or polychlorinated biphenyls (PCBs). Figure 4 shows sampling locations inside the FP building.

The TAT conducted drum sampling in level B protection. Liquid samples were collected with dedicated 3/4-inch diameter glass drum thieves. Solid samples were collected with dedicated disposable polyethylene scoops. All samples were placed into 4 ounce glass jars with Teflon lids, which were subsequently sealed and labeled. The sampling team wore latex outer gloves over nitrile gloves while sampling and donned a fresh pair of latex gloves after each sample collection. Table 1 summarizes sample collection information.

Samples FP1, FP2 and FP3 were collected in Building 1 of the facility and placed into plastic sample bags and sealed. The cotton-like material collected from the walls and ceiling material were to be tested for asbestos. Sample FP1 was collected from the east wall of Building 1 which was covered completely with this cotton-like substance. Sample FP2 was taken from a section of the ceiling material which had fallen to the floor. Sample FP3 was collected from the south wall in the west end of Building 1. Each sample was double bagged in ziploc bags and assigned a sequential sample number which was written on the sample bag.

Samples FP4 through FP9 were collected inside Building 3. Samples FP4, FP5, FP6, and FP9 were collected from the clusters of drums located at the west end of Building 3. Sample FP4 was collected from a 55-gallon poly lined drum. This drum was full of clear liquid that yielded a pH of 1 during field screening. Sample FP5 was collected from a 55-gallon drum located next to drum FP4. This container was labeled "caustic soda" and was filled with a powdery white/yellow solid. Sample FP6 was collected from a 55-gallon steel drum which was broken open on the side allowing much of its contents to be spilled onto the floor. This drum was also labeled "caustic soda" and contained a white/yellow solid. Sample FP9 was collected from a 55-gallon poly lined drum located immediately next to drums FP4 and FP5. The drum contained a white opaque sludge that seemed to crystallize when disturbed.



LEGEND

- CARDBOARD PACKING
- CAUSTICS
- OXIDIZERS
- (A) ACIDS
- ELECTRICAL PANELS
- P 5-GAL PAILS
- PIT
- GLYCOL ETHER DRUM
- GEN DIESEL GENERATOR
- MF WATER FOUNTAIN
- CAUSTICS STOCKPILE
- FP # SAMPLE LOCATION
- ** SAMPLE FP10 WAS COLLECTED OUTSIDE BUILDING 8 ON THE EAST SIDE

FIGURE 4

SAMPLE LOCATIONS INSIDE THE FORMULATED PRODUCTS BUILDINGS

FORMULATED PRODUCTS SITE
CLYDE, SANDUSKY COUNTY, OHIO

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Samples FP7 and FP8 were collected from a stockpile of drums containing a white/yellow powder similar in appearance to the material collected as sample FP4. Although the drums in the stockpile were not clearly labeled as such, the white/yellow powder is believed to be caustic soda. The drums, both 30-gallon fiber and 55-gallon steel, were stacked to the ceiling at approximately the halfway point along the north wall of Building 3. The majority of the drums in the stockpile had undergone some degree of deterioration and many of the fiber drums were broken open. Sample FP7 was a composite collected from three locations in the stockpile of broken and deteriorating 30-gallon fiber drums. Sample FP8 was another composite of the powdery substance collected from quantities that had spilled on the floor and were surrounding the base of the stockpile.

Sample FP10 was a composite sample of materials collected from six five-gallon steel pails staged on wood pallets located outside the buildings at the northeast end of the facility. These pails contained a wet, white solid that appeared as a white crust on the surface, but was paste-like in consistency underneath the crust.

Samples FP4 through FP10 were field screened for corrosivity (pH <2 or >12.5 S.U.). All samples yielded a positive result. These samples were retained by the TAT for later shipment to a laboratory for further analysis.

The TAT field screened materials from Building 3 for the presence of PCBs. Dexsil Chlor-n-Oil kits were used to screen liquids sampled from two pails. A Dexsil Chlor-n-Soil kit was used to screen oil contaminated soils found beneath a diesel generator found in the building. Results from all three test indicated the absence of PCBs. No further analyses were performed for the detection of PCBs.

All samples were decontaminated, labeled and packaged according to E & E protocols. TAT members followed wet decontamination procedures after completing sampling activities and exiting the FP complex. All expended personal protective clothing (PPE) was bagged and left inside of the building, as directed by OSC Renninger. U.S. EPA and TAT personnel secured the building and departed site at 1400 hours.

On April 1, 1994, at 1600 hours, TAT member Frank Dachtler relinquished samples FP4 - FP10 to Michael Krasnyansky of American Environmental Laboratories (AEL) in Bedford Heights, Ohio. The chain-of-custody form was completed at this time. The nine samples (two of which were duplicates) were to be analyzed for pH, Method 150.1 for liquids and Method 9045 for solids. The three asbestos samples (FP1 - FP3) were sent to the U.S. Public Health Service (PHS) National Environmental Reference Laboratories (NERL) in Denver, Colorado. A 2-week turnaround

verbal results was requested from AEL under TDD# T05-9403-815.

On April 11, 1994, OSC Renninger and TATMs Dachtler and Renn returned to the FP site to collect a sample from the glycol ether labeled drum. The TAT in level B protection, collected one 8 ounce jar of liquid from the drum. The TAT identified the sample as FPGE. PPE and equipment was again properly decontaminated and/or bagged and left on-site.

On April 12, 1994, at 1100 hours, TAT Emily Landis relinquished sample FPGE to Craig Hannus of AEL. The sample was to be analyzed for flashpoint and VOC's following Methods 1010 and 8260, respectively.

4.0 ANALYTICAL RESULTS

Analytical results of drum and container samples collected at the Formulated Products site reveal the presence of materials with both high and low pH's. Samples FP4 and FP9 were found to have pH's of 1.11 and 0.94 Standard Units (S.U.). Samples FP5, FP6, FP7, FP8, and FP10, were found to have pH's of 10.21, 9.51, 11.67, 11.26, and 10.98 S.U., respectively. A sample collected from a drum labeled "Ethylene glycol" (FPGE), was analyzed for non-halogenated solvents and flashpoint. Analytical results revealed the presence of xylene (45.0 mg/L), ethyl benzene (2.1 mg/L), toluene (171 mg/L), and benzene (1.8mg/L). A flashpoint of 138° F was determined for the sample. Analytical results for pH and flashpoint are summarized in Table 1.

Analytical results of the three samples collected for asbestos analysis (FP1 - FP3), tested negative for asbestiform minerals.

5.0 DISCUSSION OF POTENTIAL THREATS

The conditions present at the site may constitute a threat to public health and the environment based on the considerations set forth in the National Contingency Plan (NCP), 40 CFR Section 300.415 (b)(2), which include, but are not limited to, the following:

- o Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances or pollutants or contaminants;

The FP site is located in a predominantly residential area. The closest residences is less than 50 yards from the facility. Local authorities have indicated that the FP facility has a history of periodic vandalism, allegedly by local children. Observations made during the site assessment and incident reports from the Clyde Police Department support this premise. Spray

paint graffiti was observed on the walls of Building 1, and jars of chemicals appear to have been deliberately removed from shelves and smashed on the facility's laboratory floor in Building 5.

The FP facility is unsecured with numerous available points of ingress including unsecured doors and broken out windows. There are no physical barriers surrounding the FP facility to deter access. The potential for the direct exposure of humans and animals to the chemicals and hazards at the FP facility is high.

- o Hazardous substances or pollutants or contaminants in drums, tanks, or other bulk storage containers, that may pose a threat of release;

The FP facility contains an indefinite number of drums of caustic soda, also known as sodium hydroxide. Sodium hydroxide is a listed hazardous substance in 40 CFR Part 302.4. The inventory of chemicals for the FP site also includes trisodium phosphate. A strong caustic, this material is also a listed hazardous substance in 40 CFR Part 302.4.

In addition to these materials, at least one drum labeled glycol ether (ethylene glycol monoethyl ether), found in Building 3, is known to be in the FP facility. Analytical results show that this liquid exhibits the characteristic of ignitability as defined in 40 CFR Part 261.21. Therefore, it is considered a hazardous material and is listed among the substances in 40 CFR Part 302.4.

Analytical results for liquid samples collected from two 55-gallon drums located in Building 3 indicate pH's of 0.94 S.U. and 1.11 S.U. This liquid, is defined as corrosive under 40 CFR 261.22 and is therefore, considered a hazardous material.

Many of drums labeled as caustic soda are either in a severely deteriorated state, or they have broken open and spilled their contents onto surrounding drums or flooring. Much of the spilled contents shows evidence of varying degrees of reactivity with moisture; probably rainfall which has entered storage areas through broken windows and/or openings in the building ceilings. Areas of discoloration on concrete floors and large puddles of yellow colored liquid around clusters of deteriorated drums suggest that either liquid contents have leaked from the drums or that solid contents have mixed with water and flowed away from the drums.

In addition to the chemicals inside the facility, there are eight to ten five-gallon steel pails of caustic materials staged outside the buildings at the northeast corner of the property. A pit containing liquid waste was discovered inside Building 3. Although this pit is covered with a piece of wood, a hazard still

exists because no steps were taken to secure the wood in place. The quantity of waste inside the pit is unknown. In addition to this pit, there is also a large pit outside of the building, east of Building 8. At the time of the assessment, this pit contained standing liquid and debris. The depth of the pit and the makeup of the liquid contents is unknown. It appears that no provisions were ever made to cover over the outside pit.

- o Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

The FP facility is located in northcentral Ohio. The weather in this area includes heavy snow and rainfall, and sub-freezing temperatures. Temperatures in the summer can easily rise into the 90s. Characteristic of temperate climates, the area experiences several freeze-thaw cycles during the fall and spring seasons. The FP facility is in various states of disrepair. Broken out windows and leaking ceilings allow drums and containers stored inside the facility to be exposed to rain and snow, and to be effected by the freeze-thaw cycle. Numerous fiber drums observed in Building 3 have already deteriorated and collapsed as a result of exposure to moisture. Many of these drums have spilled their contents on surrounding drums and on the floor. Regular contraction and expansion of steel and poly drums in response to the freeze-thaw cycle hastens the deterioration of the drums and increases the likelihood of a release.

- o Threat of fire or explosion

The presence of glycol ether (ethylene glycol monoethyl ether) and the possible existence of sodium perborate at the FP facility dramatically increase the likelihood of a fire or explosion at the facility.

One drum of ethylene glycol monoethyl ether is known to be inside the FP facility. This liquid exhibits the characteristic of ignitability, is highly reactive in the presence of oxidizers and breaks down in the presence of caustics. This drum is surrounded by numerous drums of oxidizers and caustics at the FP facility. This chemical also has the potential to form explosive peroxides, combustible liquids and vapors. Laboratory analysis revealed a flashpoint of 138° F for this compound. In the event of a fire, this material has the potential to give off toxic carbon monoxide.

In addition to ethylene glycol monoethyl ether, the inventory of chemicals for the FP facility also includes sodium perborate. Sodium perborate is a strong oxidizer that is highly shock sensitive, and can be easily detonated with light friction. The possible existence of this chemical on site is a threat to the persons in or around the facility, if disturbed.

6.0 SUMMARY

On March 31, 1994, and April 11, 1994, TAT conducted site assessment activities at the Formulated Products site in Clyde, Sandusky County, Ohio. Eight drum samples were collected and laboratory-analyzed for pH, flashpoint, and VOC's. An additional three samples of material found on the walls and ceiling of the facility were collected and laboratory-analyzed to determine the presence of asbestos. The presence of materials with extreme pH's and low flashpoint at the site pose threats to human health and the environment as outlined above, and as defined in the NCP.

TABLE 1
ANALYTICAL RESULTS
FORMULATED PRODUCTS

SAMPLE NUMBER	DATE COLLECTED	pH	FLASHPOINT DEG. F
FP4	3/31/94	1.11	----
FP5	3/31/94	10.21	----
FP6	3/31/94	9.51	----
FP7	3/31/94	11.67	----
FP8	3/31/94	11.26	----
FP9	3/31/94	0.94	----
FP10	3/31/94	10.98	----
FPGE	4/11/94	----	138

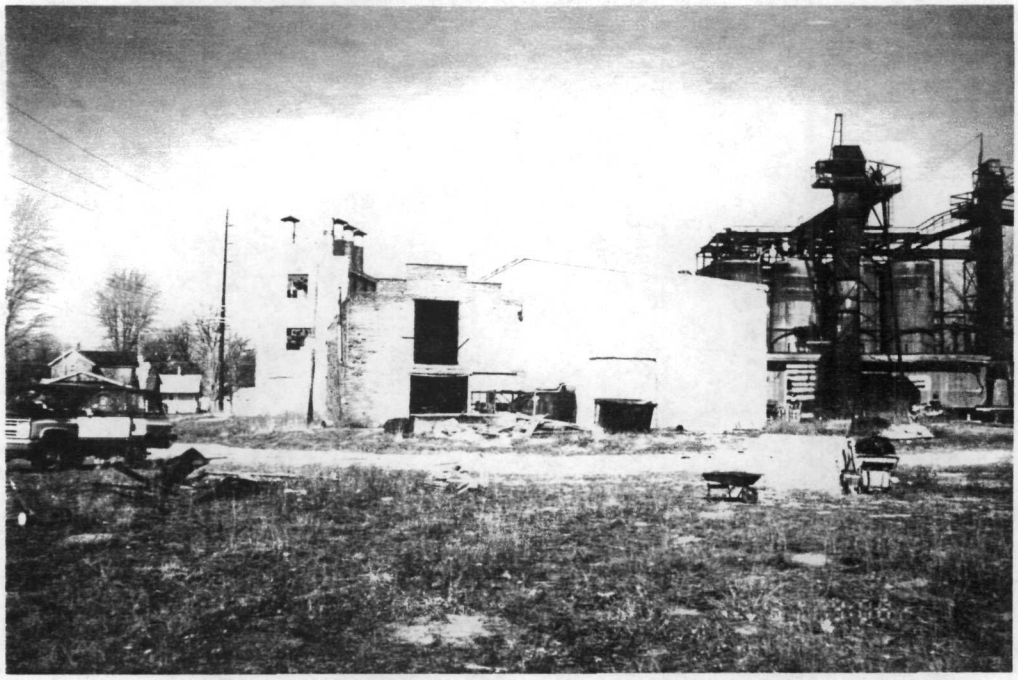
---- = NOT ANALYZED

ANALYSIS CONDUCTED BY AMERICAN ENVIRONMENTAL LABORATORIES
BEDFORD HEIGHTS, OHIO, UNDER TDD# T05-9403-815

A

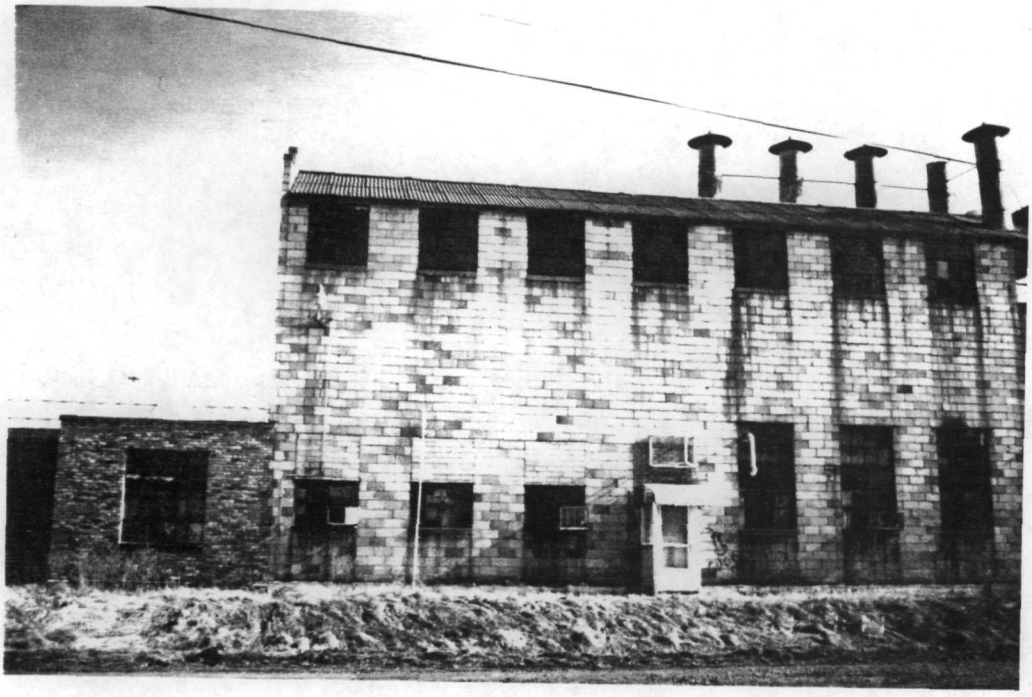
C

C

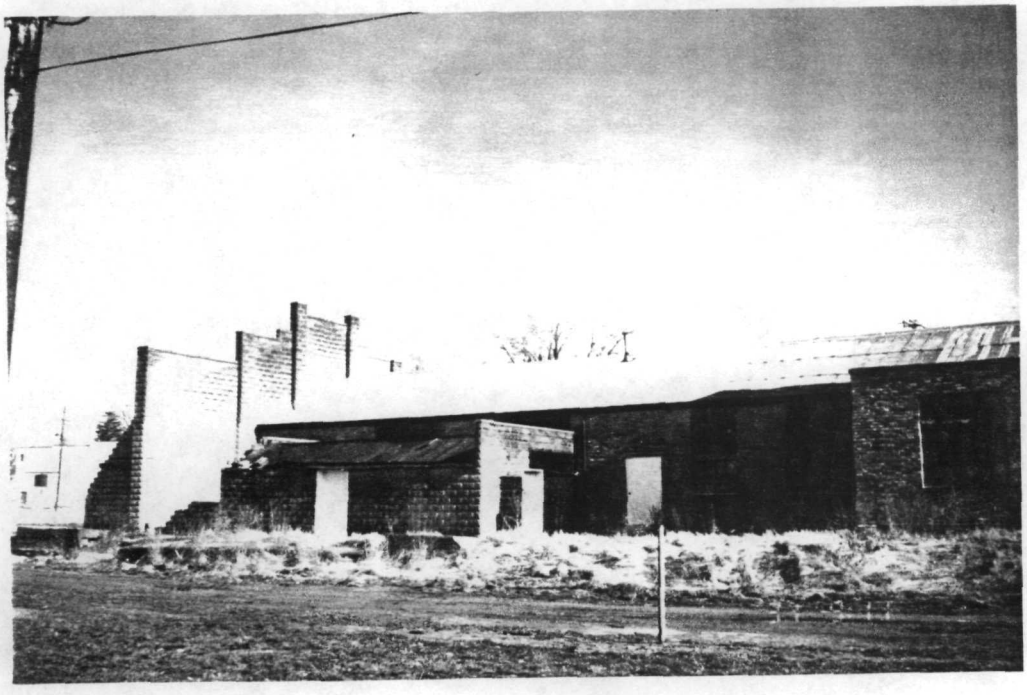


SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: WEST **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: VIEW OF EAST SIDE OF FACILITY.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: STORAGE GARAGE ON SOUTH SIDE OF THE FACILITY, EAST END OF THE BUILDING.

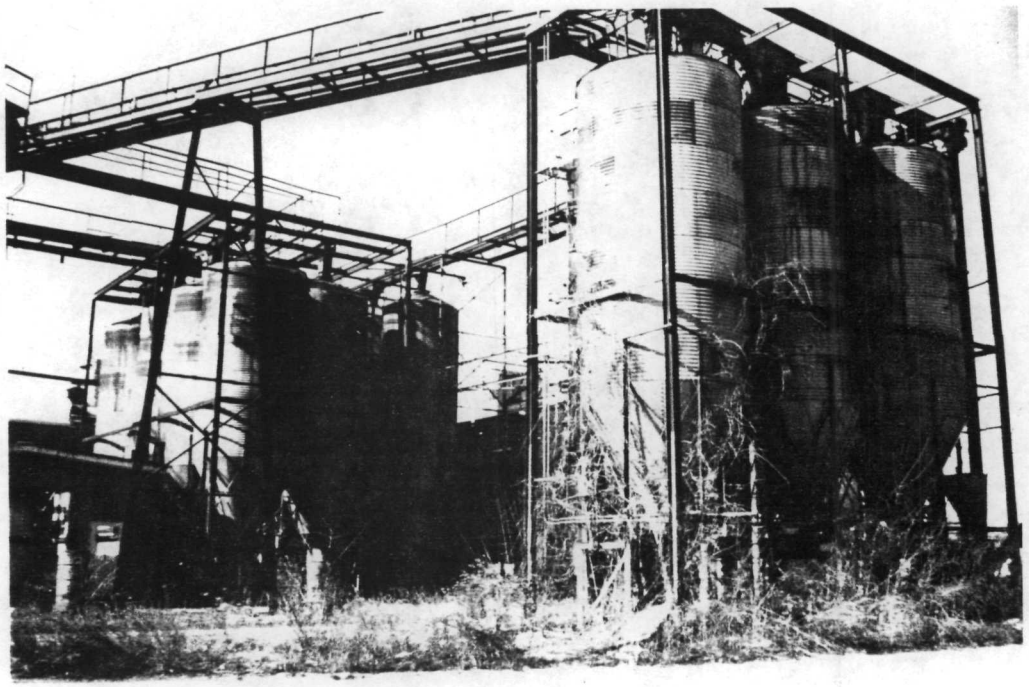


SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: STORAGE AND OFFICE BUILDING ON THE SOUTH SIDE OF THE FACILITY. FIRST FLOOR IS OFFICE SPACE. SECOND FLOOR IS STORAGE.

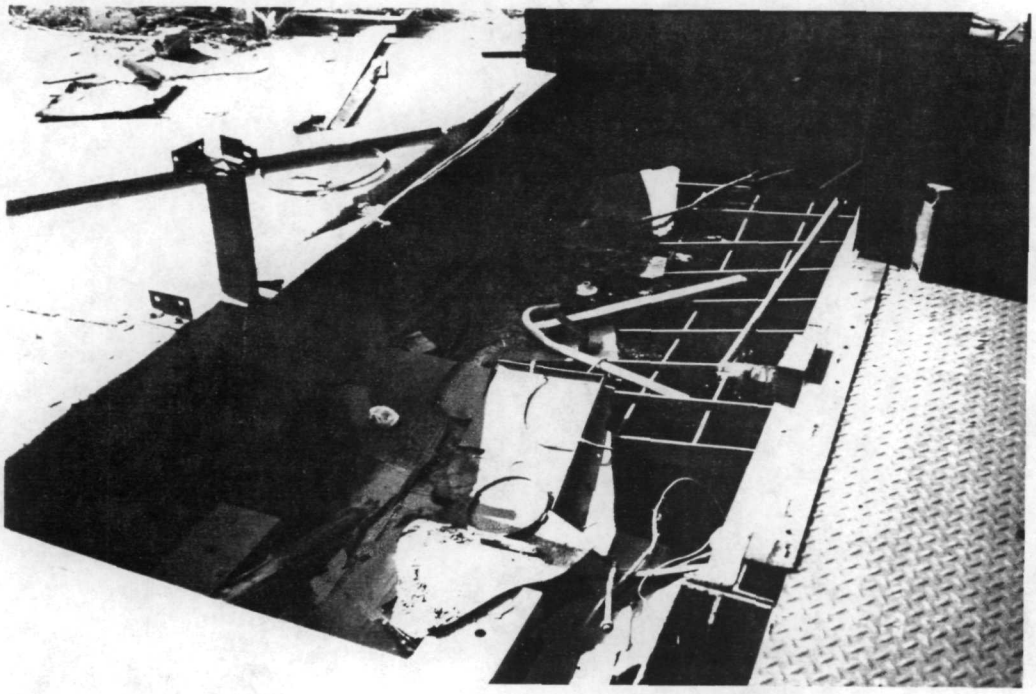


SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTHWEST **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: TOOL/MACHINE SHOP ON THE SOUTHWEST SIDE OF THE FACILITY.

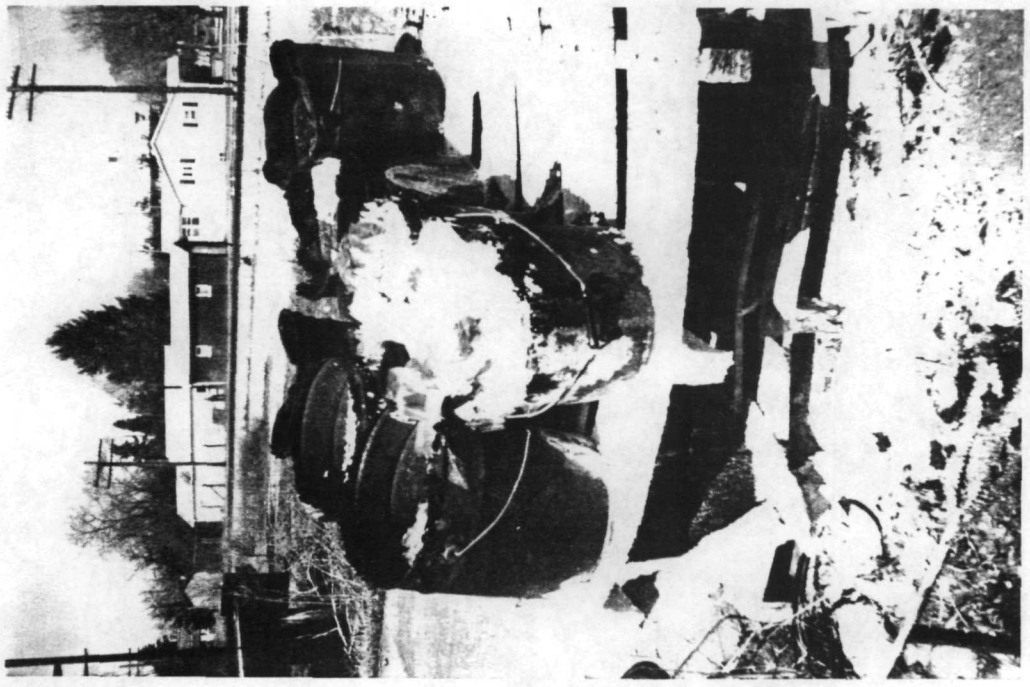
SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: EAST **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: WEST WALL OF THE FACILITY AND ADJOINING CONCRETE FOUNDATION.



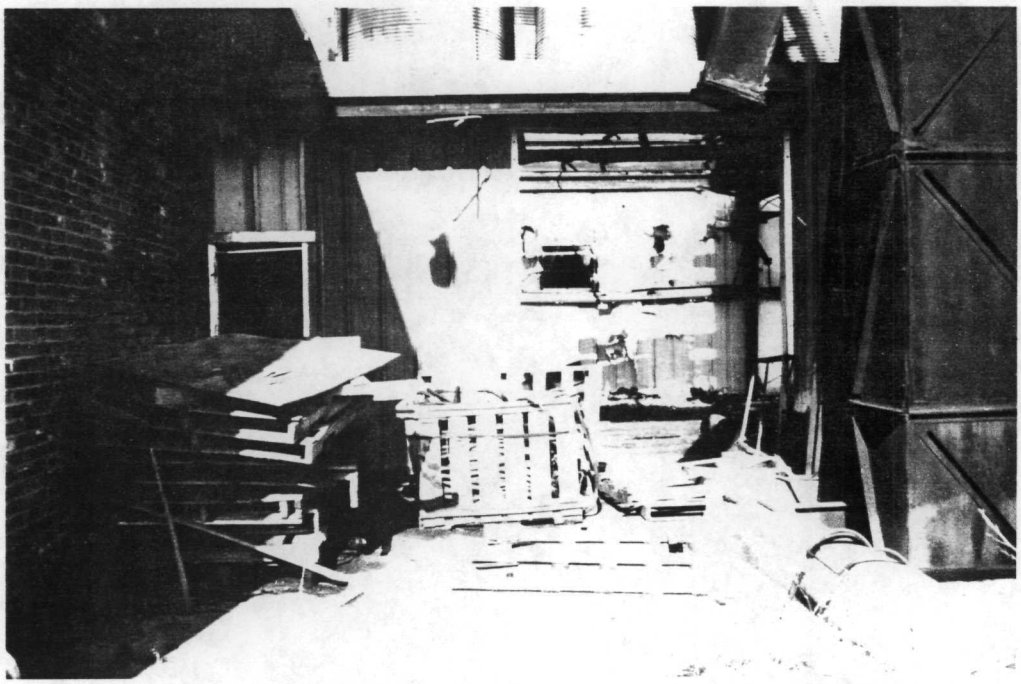
SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: SOUTHWEST **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: BANKS OF SILOS ON THE NORTH SIDE OF THE FACILITY. THESE SILOS WERE DETERMINED TO BE EMPTY.



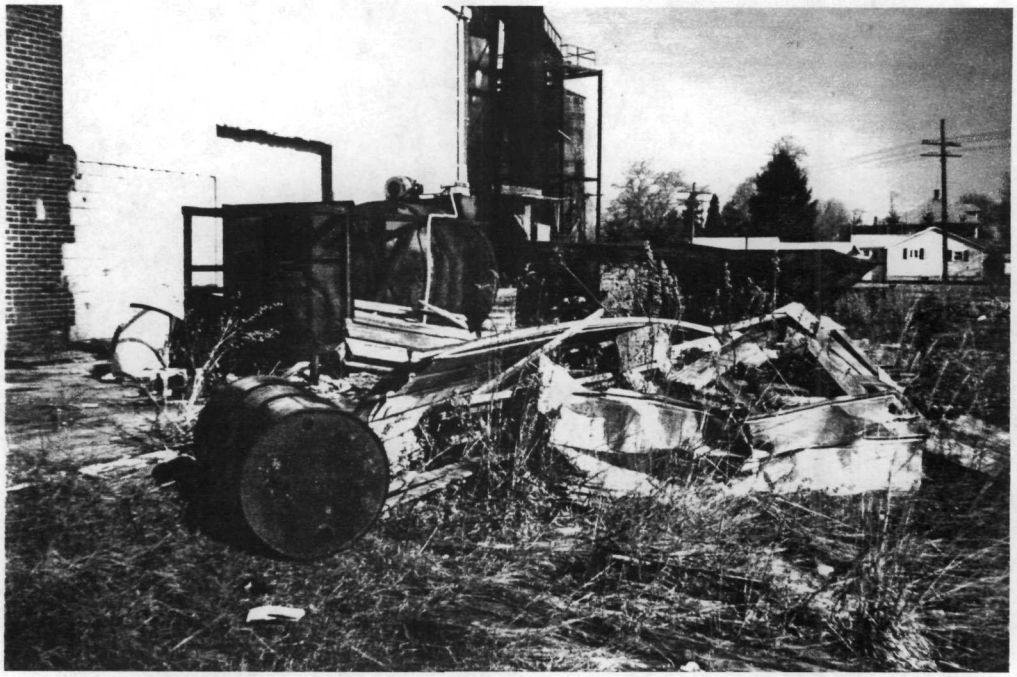
SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: SOUTHEAST **DATE:**03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: WATER AND DEBRIS FILLED PIT ADJOINING THE LOADING DOCK ON THE EAST END OF THE FACILITY.



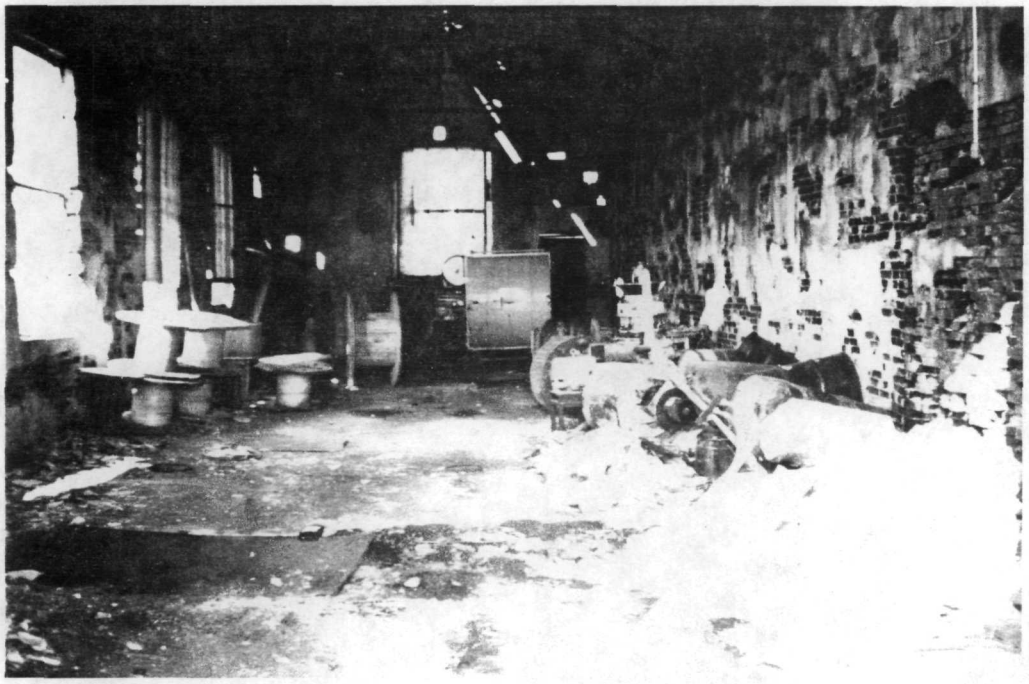
SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: SEVERELY DETERIORATED STEEL PAILS CONTAINING CAUSTIC MATERIALS.



SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: WEST **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: WOOD PALLETS STAGED ON THE LOADING DOCK OUTSIDE AN OPEN SHED ON THE EAST SIDE OF THE FACILITY.

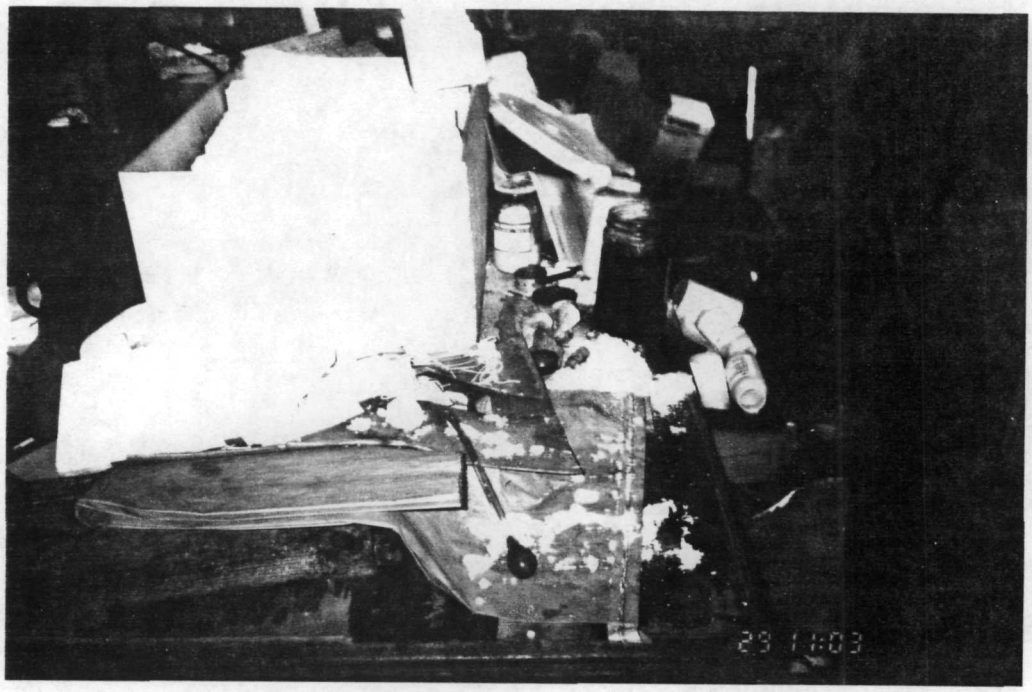


SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** SW
DESCRIPTION: CORRODED DRUMS, SIDING, WOOD PALLETS AND OTHER DEBRIS STAGED ON THE EAST END OF THE FACILITY.

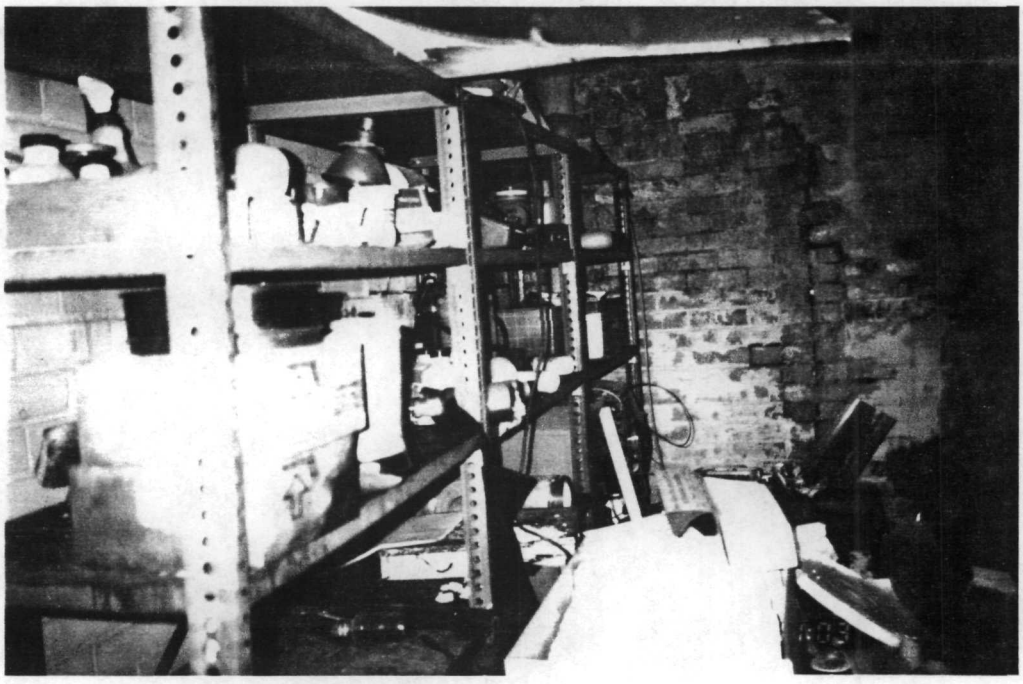


SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: WEST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: INTERIOR OF BUILDING B4. STORAGE AREA DETACHED FROM THE REST OF THE FACILITY. ACCESSIBLE FROM FRONT BAY DOOR.

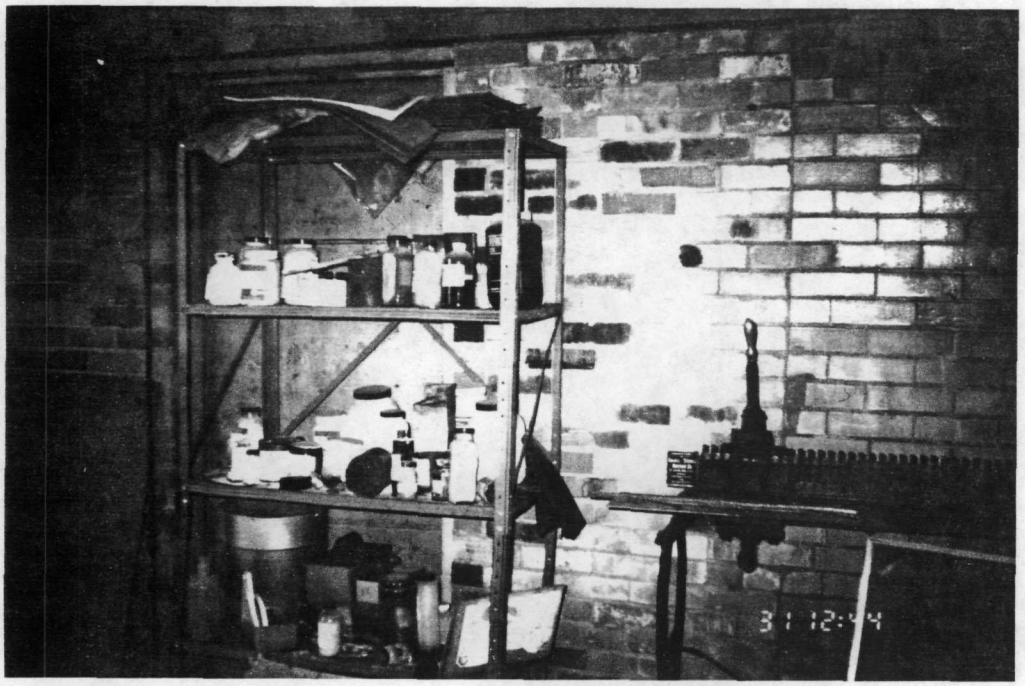
SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTHWEST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: 5-GALLON CONTAINER OF CORROSIVE, OXIDIZING SOLID IN LABORATORY.



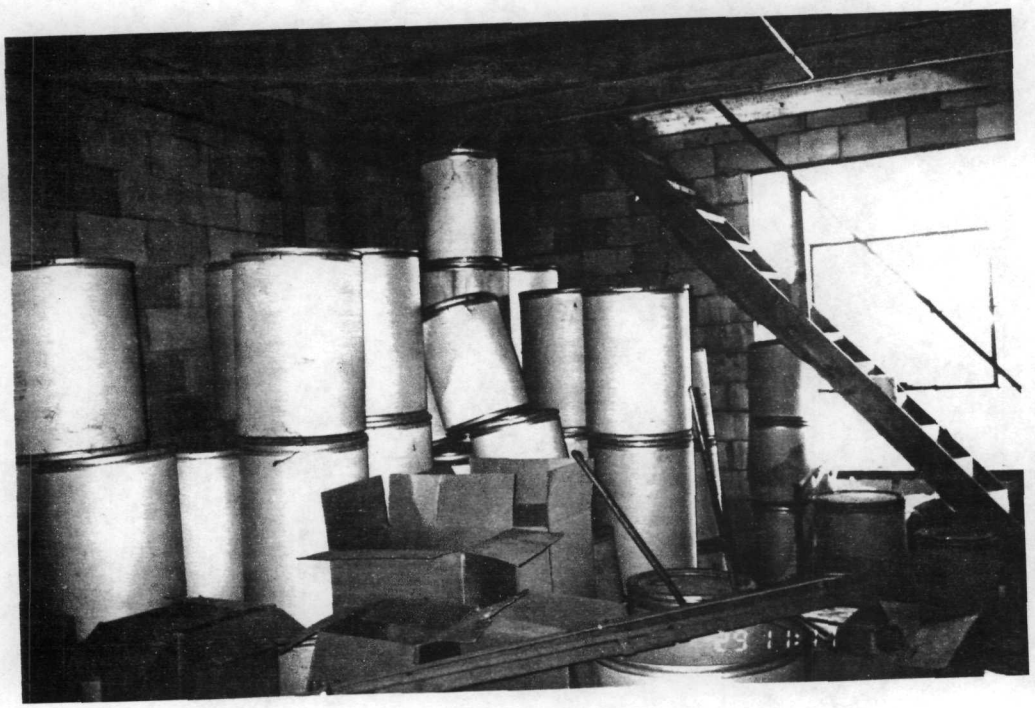
SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: BROKEN AND OPEN CONTAINERS WITH BOTTLES OF CHEMICALS IN LABORATORY, BUILDING B5.



SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: SHELVES OF CHEMICALS IN LABORATORY, BUILDING B5.



SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: SHELF OF LABORATORY CHEMICALS IN BACK STORAGE ROOM, WEST OF LABORATORY.

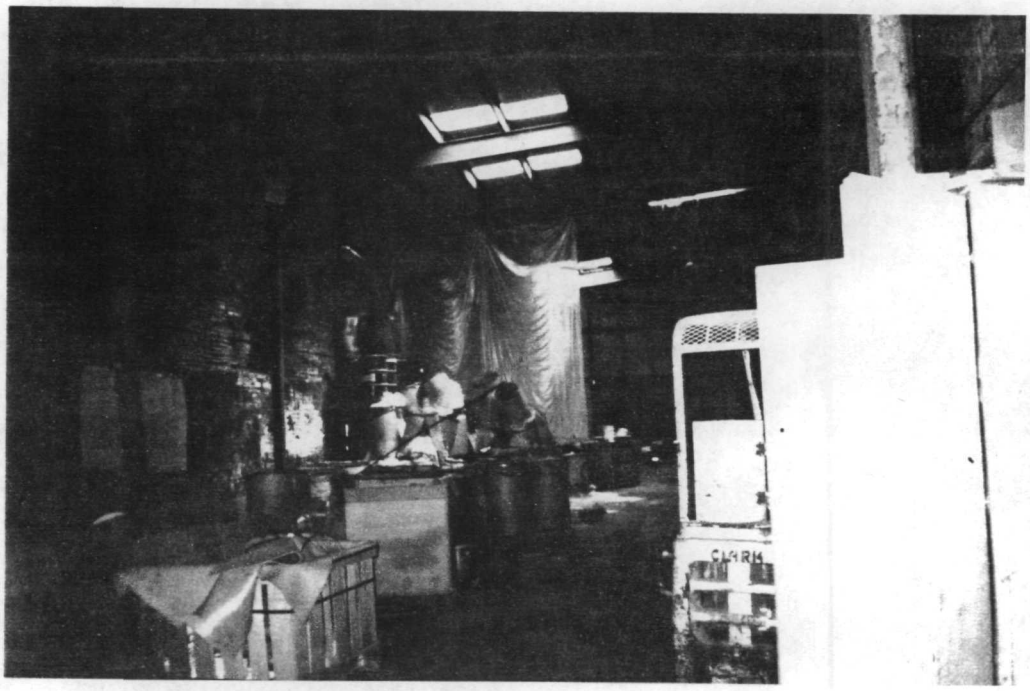


SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: WEST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: SECOND FLOOR OF BUILDING B5. EMPTY FIBER DRUMS REST ON DETERIORATING FLOOR ABOVE LABORATORY ROOMS.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTHEAST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: STOCKPILE OF FIBER AND STEEL 55-GALLON DRUMS CONTAINING CAUSTIC SODA. DRUMS WERE SEVERELY DETERIORATED DUE TO EXPOSURE TO MOISTURE, AND CONTENTS WERE SPILLED ON THE FLOOR.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: NORTHWEST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: CLOSE UP VIEW OF DETERIORATED DRUMS CONTAINING CAUSTIC SODA. DISCOLORED AREAS ON THE FLOOR RESULTED FROM EXPOSURE TO WATER.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** **EOH1026SAA**
DIRECTION: NORTH **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: CORRODED 55-GALLON DRUMS CONTAINING CAUSTIC SODA OR ACIDS DISCOVERED ON THE GROUND FLOOR OF THE MAIN BUILDING.



SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: EAST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: BINS OF DEBRIS, FIBER AND STEEL DRUMS CONTAINING CAUSTIC SODA, WERE DISCOVERED ON THE GROUND FLOOR OF THE MAIN BUILDING.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: SOUTHEAST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: PIT NEAR VAT IN THE NORTHEAST END OF THE BUILDING 3. CONTENTS OF PIT WERE BLUE-GREEN COLORED.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: SOUTH **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: TAT MEMBER PREPARES TO EXIT THE FACILITY. PLASTIC TUBS CONTAINING DECONTAMINATION SOLUTION WERE PART OF THE DECON ZONE SET UP OUTSIDE THE BUILDING AT THE EXIT POINT.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: EAST **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: ANOTHER VIEW OF PAILS, STEEL AND FIBER DRUMS, EQUIPMENT AND DEBRIS ABANDONED AT THE FACILITY.

SITE NAME: FORMULATED PRODUCTS **TDD:** T059403012 **PAN:** EOH1026SAA
DIRECTION: N/A **DATE:** 03/31/94 **PHOTOGRAPHER:** FD
DESCRIPTION: SEVERELY CORRODED BOTTOM OF A FIBER DRUM THAT CONTAINED AN OXIDIZER.

B

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M E M O R A N D U M

DATE: April 12, 1994

TO: Frank Dachtler, TAT Project Manager, E & E, Cleveland, Ohio

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

VIA: Anne A. Busher, ATATL, E & E, Cleveland, Ohio

RE: Analytical TDD: T059403815 Project TDD: T059403012
Analytical PAN: EOH1026AAA Project PAN: EOH1026SAA

SUBJ: pH Data Quality Assurance Review for the Formulated Products Site, Clyde, Sandusky, Ohio

The data quality assurance review of three liquid and six solid samples, collected at the Formulated Products site on March 31, 1994, is now complete. Upon submittal to American Environmental Laboratories, the liquid samples were tested for pH electrometrically, according to EPA Method 150.1. The solids were tested after appropriate preparation, following SW-846 Method 9045.

Data Qualifications:

I Instrument Performance: Acceptable.

The pH meter was calibrated against three buffer solutions having pH 4.00, 7.00, and 10.00. Results for check standards (pH 7.00 and 10.00) were within two percent of the true values.

II Duplicate Analyses: Acceptable.

Each sample was analyzed in duplicate. The sample duplicate results were all within five percent of the initial values.

Overall Assessment of Data:

OSWER Directive 9360.4-01 (1990) contains no specific guidance regarding the evaluation of pH measurements. Given the calibration and sample duplicate results, it is the professional opinion of the reviewer that the sample results are acceptable for use as reported.

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP4, Acid Drum
LABORATORY ID: 940810
MATRIX: Aqueous

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	1.11	1.11	150.1	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Alla Royak for M.K

Dr. Michael Krasnyansky
Laboratory Director

5475 Perkins Road • Bedford Heights, Ohio 44146 • Phone (216) 786-1403 • FAX (216) 786-1426
(800) 280-TEST • (800) 280-8378

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP5, Caustic Drum
LABORATORY ID: 940811
MATRIX: Solid

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

==========

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	10.21	10.62	9045	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Jeff Ackerman for A.R.
Dr. Alla Royak, QA/QC Manager

Alla Royak for M.K.
Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP6, Open/Broken Caustic
LABORATORY ID: 940812
MATRIX: Solid

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	9.51	9.53	9045	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP7, Stack of Fiber Drum
LABORATORY ID: 940813
MATRIX: Solid

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	11.67	11.66	9045	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #: T05 9403 815
SAMPLE ID: FP8, Floor Near Fiber Drum
LABORATORY ID: 940814
MATRIX: Solid

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

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Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	11.26	11.28	9045	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP9, Acid Crystal Drum
LABORATORY ID: 940815
MATRIX: Aqueous

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

==========

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	0.94	0.93	150.1	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP10, Caustic Drum 2
LABORATORY ID: 940816
MATRIX: Solid

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	10.98	10.97	9045	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #:T05 9403 815
SAMPLE ID: FP7B, Stack (II)
LABORATORY ID: 940818
MATRIX: Solid

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

==========

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	9.70	9.71	9045	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER: Ecology & Environment
PROJECT, P.O. #: T05 9403 815
SAMPLE ID: FP9B, Acid Crystal (II)
LABORATORY ID: 940817
MATRIX: Aqueous

DATE SAMPLED: 3/31/94
DATE RECEIVED: 4/01/94
DATE REPORTED: 4/04/94

Parameter	Sample Result	Sample Duplicate Result	EPA Method	Date Analyzed
pH	0.91	0.92	150.1	4/04/94

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyánsky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

/IRC NTAL DTEC TAG:
Office of Enforcement

...EGIC...
77 West Jackson Boulevard
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
ZT2054	TDS ~~9204~~ 9403 815

SAMPLERS: (Print Name and Sign) Tim Rowe/[illegible], Frank Dachter, Sylvia Wong

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Analyte: PH/SO.1	PH/9045					TAG NUMBERS
FP4	3/31/94	11:20		X	FP4, Acid Drum	2 x 4oz	X						liq.
FP5	↓	1125		X	FP5, Caustic drum	2 x 4oz		X					solid
FP6		1200		X	FP6, open/broken caustic	2 x 4oz		X					↓
FP7		1230	X	X	FP7, stack of fiber drums	1 x 4oz		X					
FP8		1235		X	FP8, Floor near fiber drums	1 x 4oz		X					↓
FP9		1315		X	FP9, Acid, crystal drum	1 x 4oz	X						liq.
FP10		1330		X	FP10, caustic drum 2	1 x 4oz		X					solid
FP7B		1230	X		FP7B, stack (II)	1 x 4oz		X					solid
FP9B	↓	1315		X	FP9B, Acid, crystal (II)	1 x 4oz	X						liq.

QA Level II
14 cal day verbal results
21 cal day hardcopy results

Results to: Frank C. Dachter
c/o Ecology + Environment, Inc.
6777 Engle Rd. Suite N
Cleveland, OH 44130
tel (216) 243-3330 fax 243-6923

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	4/1/94 1430	[signature]
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) / Date / Time
		[signature] 4/1/94 1530

Ship To: Pick-up by AEL

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Airbill Number

Chain of Custody Seal Numbers

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File

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M E M O R A N D U M

DATE: May 6, 1994

TO: Frank Dachtler, TAT Project Manager, E & E, Cleveland, Ohio

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

VIA: Herb Langer, TAT Chemical Engineer, E & E, Detroit, Michigan

RE: Analytical TDD: T059403815 Project TDD: T059403012
Analytical PAN: EOH1026AAA Project PAN: EOH1026SAA

SUBJ: Flashpoint Data Quality Assurance Review for the Formulated Products Site, Clyde, Sandusky County, Ohio

The data quality assurance review of a liquid drum sample collected at the Formulated Products site on March 31, 1994 is now complete. Upon submittal to American Environmental Laboratories, the sample was tested for its flashpoint using a Pensky-Martens type closed-cup flashpoint tester, as specified in SW-846 Method 1010.

Overall Assessment of Data:

OSWER Directive 9360.4-01 (1990) contains no specific guidance regarding the evaluation of flashpoint tests. The instrument check standard (para-xylene) produced a result within 2 degrees Farenheit of its expected flashpoint, indicating that it was functioning within quality control limits. The professional opinion of the reviewer is that the sample results are acceptable for use as reported.

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER:	Ecology & Environment	DATE SAMPLED:	4/11/94
PROJECT, P.O. #:	T05-9403-815	DATE RECEIVED:	4/12/94
SAMPLE ID:	Glyc. Ether Drum	DATE ANALYZED:	4/13/94
LABORATORY ID:	940974	DATE REPORTED:	4/18/94
MATRIX:	Aqueous		

FUELS ANALYSIS

PARAMETER	METHOD	RESULT	DATE ANALYZED
Flash Point (Deg. F)	EPA 1010	138	4/13/94

We certify the above analysis to be the true results based on the designated samples

Alla Royak

Dr. Alla Royak, QC/QA Manager

Dr. Michael Krasnyansky
Laboratory Director

5475 Perkins Road • Bedford Heights, Ohio 44146 • Phone (216) 786-1403 • FAX (216) 786-1426
(800) 280-TEST • (800) 280-8378

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M E M O R A N D U M

DATE: May 10, 1994

TO: Frank C. Dachtler, TAT Project Manager, E & E, Cleveland, OH

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, OH

VIA: Herb Langer, TAT Chemical Engineer, E & E, Detroit, MI

SUBJ: F001 through F005 Listed Solvents Data Quality Assurance Review, Formulated Products Site, Clyde, Sandusky County, OH

RE: Analytical TDD: T059403815 Project TDD: T059403012
Analytical PAN: EOH1026AAA Project PAN: EOH1026SAA

The data quality assurance review of an aqueous sample taken from the "glycol ether" drum at the Formulated Products site on April 11, 1994, is now complete. The sample was submitted to American Environmental Laboratories in Bedford Heights, Ohio, to be analyzed for F-listed solvents. The laboratory followed SW-846 Methods 8015, 8260, and 8270 in analyzing the sample by gas chromatography with a flame ionization detector (8015, GC/FID) or mass spectrometer (8260 and 8270, GC/MS).

Data Qualifications

I. Sample Holding Times: Acceptable.

The laboratory received the sample in good condition on April 12, 1994. The sample was analyzed between April 19 and 22, 1994. The sample was handled in compliance with the respective 7-day and 40-day holding time limits for extraction and analysis.

II. GC/MS Tuning Criteria: Qualified.

Method 8015 - Not applicable.

Method 8260 - Bromofluorobenzene (BFB) instrument tuning compound was analyzed on the same instrument and

within 12 hours of the sample, as required. All ion abundance criteria were met.

Method 8270 - Decafluorotriphenylphosphine (DFTPP) instrument tuning compound was run within 12 hours of sample analysis, on the same instrument, as required. All ion abundance criteria were met.

III. Initial and Continuing Calibrations: Acceptable.

Method 8015 - Initial calibration on April 13, 1994 appeared to have a positive linear correlation between peak height/area with the concentration of the standard. Calibration check standards were analyzed on the same day as the samples.

Method 8260 - All response factors (RFs) were greater than or equal to 0.05 for the continuing calibration, as required. The percent relative standard deviations (%RSDs) of the RFs for compounds in the initial calibration were less than or equal to 30%, as required. Internal standard peak areas and retention times were within quality control limits.

Method 8270 - All response factors (RFs) were greater than or equal to 0.05 for the initial calibration, as required. The percent relative standard deviations (%RSDs) of the RFs for compounds in the initial calibration were less than or equal to 30%, as required, except for nitrobenzene, for which the %RSD was 40.1. No action is required because the sample result for nitrobenzene was negative. Continuing calibration results for each of the compounds of interest were within 25% of the initial calibration RFs, as required. Internal standard peak areas and retention times were within quality control limits.

IV. Blanks: Acceptable.

Method blanks were prepared and analyzed with the sample for each method. No contaminants were detected above the instruments' detection limits.

V. Compound Identification: Acceptable.

Surrogate compound percent recoveries were reported as being within quality control limits. Surrogate compound peaks were not identified, therefore, their relative retention time shifts could not be evaluated.

VI Compound Quantitation and Detection Limits: Acceptable.

The results are reported on an as-received basis, and correctly account for dilutions made prior to analysis.

Overall Assessment of Data

This data validation is based upon the guidance set forth in OSWER Directive 9360.4-01 (April 1990). With the information provided, the sample results may be accepted as reported, with the qualification stated above.

CUSTOMER:	Ecology & Environment	DATE SAMPLED:	4/11/94
PROJECT, P.O. #:	T05-9403-815	DATE RECEIVED:	4/12/94
SAMPLE ID:	Glycol Ether Drum	DATE EXTRACTED:	4/18/94
LABORATORY ID:	940974	DATE ANALYZED:	See Below
MATRIX:	Aqueous	DATE REPORTED:	4/19/94

F003 & F005 NON-HALOGENATED SOLVENTS
EPA Method 8260/8015M

Date Analyzed: 4/19/94, 4/22/94 - Pyridine, 4/18/94 - Alcohols

COMPOUND	METHOD	RESULT mg/L	DETECTION LIMIT mg/L
Xylene	A	45.0	1.0
Acetone	A	BDL	1.0
Ethyl Acetate	A	BDL	*
Ethyl Benzene	A	2.1	1.0
Ethyl Ether	A	BDL	*
Methyl Isobutyl Ketone	A	BDL	1.0
n-Butanol	B	BDL	100
Cyclohexanone	B	BDL	100
Methanol	B	BDL	100
Toluene	A	171	1.0
Methyl Ethyl Ketone	A	BDL	1.0
Carbon Disulfide	A	BDL	1.0
Isobutanol	B	BDL	100
Pyridine	A or C	BDL	200
Benzene	A	1.8	100
2-Ethoxyethanol	B	BDL	1.0
2-Nitropropane	A	BDL	*

BDL = Below Detection Limit

A:	Surrogate Recovery %: (GC/MS)	Dibromofluoromethane:	94%
		Toluene-d8:	113%
		BFB:	108%
B:	Surrogate Recovery %: (GC-FID)	N-Pentanol:	87%
C:	Surrogate Recovery %: (GC-FID)	N-Pentanol:	123%

* A library search of the mass spectral data indicated the compound was not present.

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

CUSTOMER:	Ecology & Environment	DATE SAMPLED:	4/11/94
PROJECT, P.O. #:	T05-9403-815	DATE RECEIVED:	4/12/94
SAMPLE ID:	Glycol Ether Drum	DATE EXTRACTED:	4/21/94
LABORATORY ID:	940974	DATE ANALYZED:	4/21/94
MATRIX:	Aqueous	DATE REPORTED:	4/21/94

F004 NON-HALOGENATED SOLVENTS
EPA Method 8270

COMPOUND	RESULT mg/L	DETECTION LIMIT mg/L
Cresols	BDL	200
Nitrobenzene	BDL	200
Cresylic Acid	BDL	200

BDL = Below Detection Limit

Surrogate Recovery %:

Nitrobenzene-d5:	108% (23-120%)	Phenol-d6:	109% (24-113%)
2-Fluorobiphenyl:	107% (30-115%)	2-Fluorophenol:	1% (25-121%)
p-Terphenyl-d14:	122% (18-137%)	2,4,6-Tribromophenol:	111% (19-122%)

We certify the above analysis to be the true results based on the designated samples.

Alla Royak
Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

AMERICAN ENVIRONMENTAL LABORATORIES, Inc.

CUSTOMER:	Ecology & Environment	DATE SAMPLED:	4/11/94
PROJECT, P.O. #:	T05-9403-815	DATE RECEIVED:	4/12/94
SAMPLE ID:	Glycol Ether Drum	DATE ANALYZED:	4/19/94
LABORATORY ID:	940974	DATE REPORTED:	4/19/94
MATRIX:	Aqueous		

F001 - F005 SOLVENTS
F001 & F002 HALOGENATED SOLVENTS
EPA Method 8260

COMPOUND	RESULT mg/L	DETECTION LIMIT mg/L
Tetrachloroethylene	BDL	1.0
Trichloroethylene	BDL	1.0
Methylene Chloride	BDL	1.0
1,1,1-Trichloroethane	BDL	1.0
Carbon Tetrachloride	BDL	1.0
Chlorinated Fluorocarbons	*	*
Chlorobenzene	BDL	1.0
1,1,2-Trichloro-1,2,2,-Trifluoroethane	*	*
Orthodichlorobenzene	BDL	1.0
Trichlorofluoromethane	BDL	1.0
1,1,2-Trichloroethane	BDL	1.0

BDL = Below Detection Limit

Surrogate Recovery %:	Dibromofluoromethane:	94%
	Toluene-d8:	113%
	BFB:	108%

* A library search of the mass spectral data indicated the compound was not present.

We certify the above analysis to be the true results based on the designated samples.

Dr. Alla Royak, QA/QC Manager

Dr. Michael Krasnyansky
Laboratory Director

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6777 ENGLE ROAD, CLEVELAND, OHIO 44130, TEL. (216) 243-3330
International Specialists in the Environment

M E M O R A N D U M

DATE: May 6, 1994

TO: Frank Dachtler, TAT Project Manager, E & E, Cleveland, Ohio

FROM: Emily S. Landis, TAT Geologist, E & E, Cleveland, Ohio

VIA: Herb Langer, TAT Chemical Engineer, E & E, Detroit, Michigan

RE: Analytical TDD: T059403815 Project TDD: T059403012
Analytical PAN: EOH1026AAA Project PAN: EOH1026SAA

SUBJ: Asbestos Data Quality Assurance Review for the Formulated Products Site, Clyde, Sandusky County, Ohio

The data quality assurance review of three bulk samples of friable insulation material, collected at the Formulated Products site on March 31, 1994, is now complete. The samples were submitted to the Division of Federal Occupational Health National Environmental Reference Laboratory in Denver, Colorado for asbestos identification. The samples were examined with stereo and polarized light microscopy, supplemented with optical dispersion staining. The techniques were in compliance with the guidelines established by EPA in its Interim Method for the Determination of Asbestos Analysis in Bulk Samples (EPA-600/MA-82-020).

Overall Assessment of Data:

OSWER Directive 9360.4-01 (1990) contains no guidance regarding the evaluation of polarized light microscopy. However, based on the reviewer's professional experience, the sample results are acceptable for use as reported.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Region VIII

Health Unit 40
P.O. Box 25145
Denver Federal Center
Denver, CO 80225-0145

MAY 9 : 1994

April 27, 1994

Mr. Frank C. Dachtler
Ecology & Environment, Inc.
6777 Engle Rd., Suite N
Cleveland, OH 44130

Dear Mr. Dachtler:

Attached are the results for the bulk sample materials from Project No. ZT2054 submitted to the Division of Federal Occupational Health (DFOH) National Environmental Reference Laboratory in Denver, Colorado for asbestos identification. These samples were received at our facility on April 1, 1994. The methods used for this evaluation involved stereo and polarized light microscopy (PLM), supplemented with optical dispersion staining techniques developed by the McCrone Research Institute and in compliance with the guidelines established by EPA in its Interim Method for the Determination of Asbestos Analysis in Bulk Samples (EPA-600/MA-82-020). The DFOH laboratory services are currently accredited for bulk asbestos analysis through the EPA Interim Laboratory Accreditation Program for Bulk Asbestos Analysis and by the National Voluntary Laboratory Accreditation Program (NVLAP). Our NVLAP laboratory code number is 1593.

Through the procedures noted above, the sample is separated according to homogeneity and layering and the principal fibrous and non-fibrous components of each sample material are determined. The fibrous components are then classified as either asbestos and non-asbestos and a percentage composition range is determined for each asbestos material identified. A total asbestos content (by volume) for each individual material and the overall/total sample in question is then calculated. Further evaluations are made to determine size and morphology of the asbestos materials identified. For the purposes of this evaluation, asbestos includes: chrysotile, cummintonite-grunerite (amosite), crocidolite, tremolite, anthophyllite, and actinolite. Asbestos "fibers" for identification purposes are generally classified as particulate matter, which falls within one of the commercial asbestos categories noted above, has physical dimensions longer than 5 micrometers (um), and has a length to width ratio of 3 to 1 or greater. Results of these evaluations are listed in Table 1 and are specific for this sample set only.

If you have any question concerning these findings, or if you have additional questions concerning asbestos identification, evaluation, or abatement, please feel free to contact this office at 303/236-9985 or FTS 776-9985. If DFOH can be of further assistance, please let us know.

ANALYST

Greg Tovrea
PLM Microscopist

LABORATORY DIRECTOR

Bruce Hills, MS, CIH, CSP
Associate Director-Region VIII

TABLE I

DIVISION OF FEDERAL OCCUPATIONAL HEALTH

BULK ASBESTOS ANALYSIS RESULTS

PLM LGN 948185

SAMPLE DESCRIPTION	ASBESTOS PRESENT	ASBESTIFORM MINERAL FIBERS	OTHER FIBROUS CONSTITUENTS	TOTAL % ASBESTOS
		--------- Estimated % Composition ---------		
FP1 Insulation; friable; homogeneous; white; fibrous.	No	None Detected	Cellulose 90	0
FP2 Insulation; friable; homogeneous; white; fibrous.	No	None Detected	Cellulose 90	0
FP3 Insulation; friable; homogeneous; white grey; fibrous.	No	None Detected	Cellulose 95	0